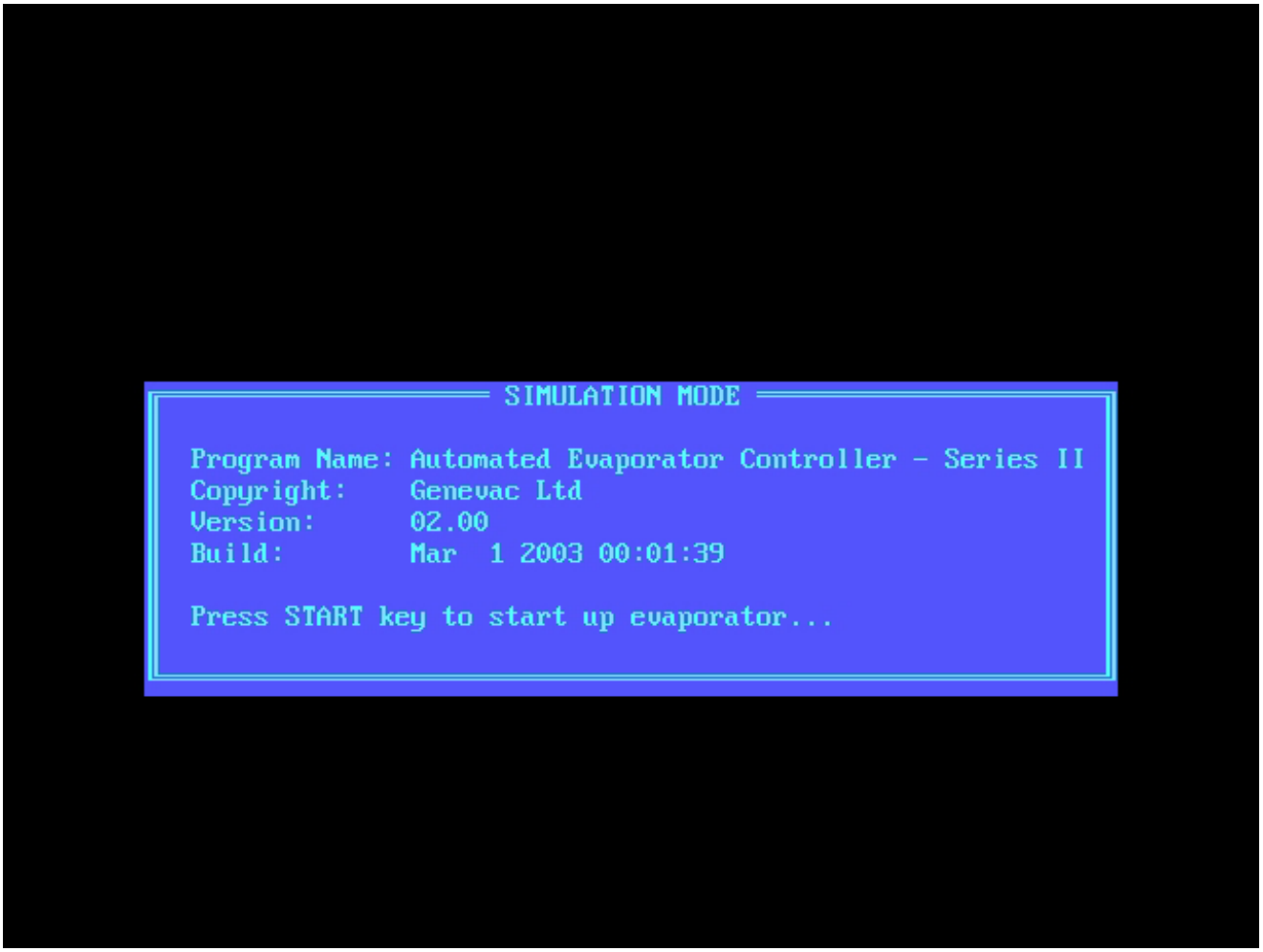
The Genevac V2.0 Software Guide


SIMULATION MODE
Program Name: Automated Evaporator Controller - Series II
Copyright: Genevac Ltd
Version: 02.00
Build: Mar 1 2003 00:01:39
Press START key to start up evaporator...

Issue 1-2 – October 2003

Amendment Control Form

Revision Number.	Issue and Reason for Change	Date Issued
1	Insertion of Note that Lyophilise is not available on Mega Evaporators.	27 July 2003
2	Insertion of Genevac ATEX statement – Page 8.	01 October 2003

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Introduction

Genevac Software V2.0 has introduced substantial changes in the features available to the end user:

For the first time the end user has the facility to auto program run parameters for any (recognised) solvent/mixture entered. These optimised run parameters are highlighted in Cyan on the display screen, when this **Auto Program** facility has been selected.

Recognised Solvent(s) available from drop down menu.

Sample Holder type available from drop down menu.

Lyophilisation (Freeze Drying) available as a Rotor Speed selection on evaporators equipped for this configuration.

Please note: Lyophilisation samples are to be frozen prior to being placed in evaporator.

End of Run Prediction:

1 Heat Flow.

2 Sample Detection.

The **Run Progress** screen now has a fully featured graphical display, providing annotated plots for temperature and pressure (now a log scale).

Please note: To make the use of this document easier, ALL textual content relating to this new release of software has been highlighted in blue.

These instructions are subject to change without notice.

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These operating instructions should be read before you use the Genevac Evaporating System.

Keep them near the system for easy reference.

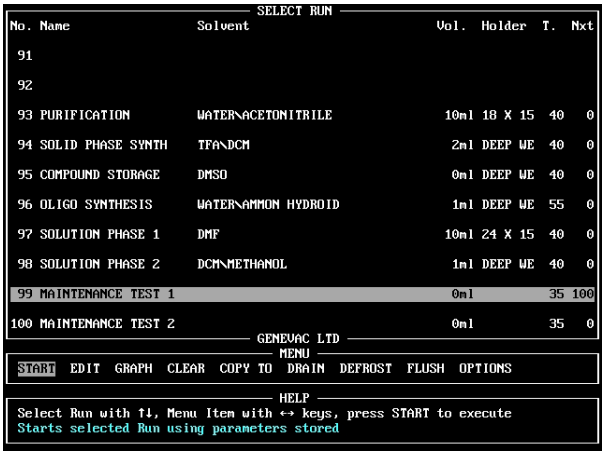
1 Getting started

SIMULATION MODE
Program Name: Automated Evaporator Controller - Series II
Copyright: Genevac Ltd
Version: 02.00
Build: Mar 1 2003 00:01:39
Press START key to start up evaporator...

When the evaporator is switched ON the screen will display the **Software Control** screen.

Press the **START** key on the keyboard to access the **Select Run** screen.

The **Select Run** screen will load up at the last run that was used.


SELECT RUN
No. Name Solvent Vol. Holder T. Nxt
91
92
93 PURIFICATION WATER\ACETONITRILE 10ml 18 X 15 40 0
94 SOLID PHASE SYNTH TFA\DCM 2ml DEEP WE 40 0
95 COMPOUND STORAGE DMSO 0ml DEEP WE 40 0
96 OLIGO SYNTHESIS WATER\AMMON HYDROID 1ml DEEP WE 55 0
97 SOLUTION PHASE 1 DMF 10ml 24 X 15 40 0
98 SOLUTION PHASE 2 DCM\METHANOL 1ml DEEP WE 40 0
99 MAINTENANCE TEST 1 0ml 35 100
100 MAINTENANCE TEST 2 0ml 35 0
GENEVAC LTD
MENU
START EDIT GRAPH CLEAR COPY TO DRAIN DEFROST FLUSH OPTIONS
HELP
Select Run with ↑↓, Menu Item with ↔ keys, press START to execute
Starts selected Run using parameters stored

A series of runs have been preloaded from RUN 93 to RUN 100 inclusive.

Runs 93 to 98 provide a range of Standard Configurations, which the customer can copy and adapt to their requirements, whilst runs 99 and 100 are only for use by engineers for maintenance / diagnostics.

Please Note: When the process involved consists of more than one (1) run, i.e. 2 or more runs linked together. Then each linked run will be indicated during the process as a "**stage**".

The system will not be available for use until the vacuum pump has reached the correct operating temperature (about 5 – 20 minutes).

The condenser and pump will be powered up when the system is started.

There will be a slight delay until the condenser reaches the correct temperature.

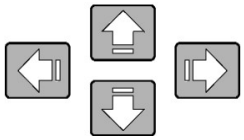
2 Using the keypad

The Series II keyboard controls and displays have been designed for ease and simplicity in use.

The keyboard has the most used function keys on the left hand side.

The right side illuminates when the **RUN DATA** screen is accessed.

The **START** and **STOP** keys start and stop a selected run.



The **cursor direction keys** move you around the screen in the direction of the arrows.

The **ENTER** key is used to 'open' and 'close' a field on the **Run Data** screen when inputting or amending data.

Note that the **START** key also acts as an **ENTER** key when the keyboard is not illuminated.

Operating the **MENU** key displays the **USER MENU** screen ***only*** when the rotor is not spinning and the chamber is vented.

Operating the **DISPLAY** key displays the **RUN LOG** screen ***only*** when a run is in progress or has finished.

Operating the **SETTINGS** key displays the **RUN DATA** screen ***only*** for the selected run.

Note that the **RUN DATA** screen can also be accessed from the menu **VIEW/EDIT DETAILS** option on the **SELECT RUN** screen when a run is ***not*** in progress.

The following notes describe the function of each of each screen and gives an explanation of the prompts displayed.

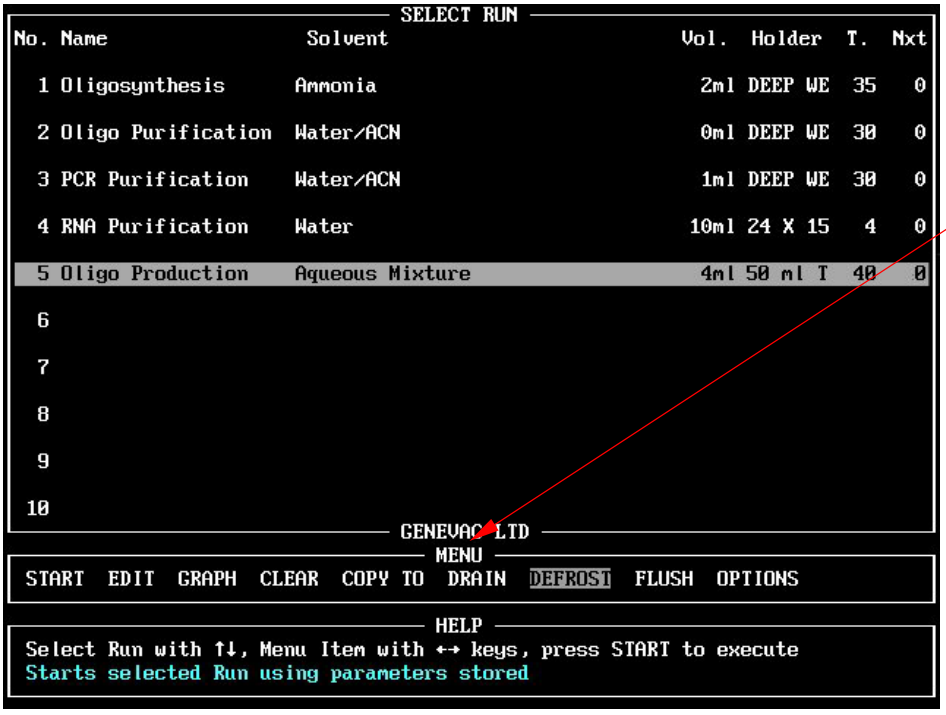
3 What the screens do

There are three main control screens.

The **SELECT RUN** screen lists the library of evaporation profiles you can choose.

This screen has the capacity to store 100 different profiles, from which you can select a particular run or set of runs.

The screen is accessed after switching on the pump and evaporator and by pressing the **START** key on the keyboard.


SELECT RUN
No. Name Solvent Vol. Holder T. Nxt
1 Oligosynthesis Ammonia 2ml DEEP WE 35 0
2 Oligo Purification Water/ACN 0ml DEEP WE 30 0
3 PCR Purification Water/ACN 1ml DEEP WE 30 0
4 RNA Purification Water 10ml 24 X 15 4 0
5 Oligo Production Aqueous Mixture 4ml 50 ml T 40 0
6
7
8
9
10
GENEVAC LTD
MENU
START EDIT GRAPH CLEAR COPY TO DRAIN DEFROST FLUSH OPTIONS
HELP
Select Run with ↑↓, Menu Item with ←→ keys, press START to execute
Starts selected Run using parameters stored

- You store and select your runs on these screens.
- Use the UP and DOWN cursor keys to move between profiles.

By moving across the horizontal menu bar,

- You can **START** a run.
- You can **VIEW** and **EDIT** a profile.
- You can **CLEAR** a profile.
- You can **COPY** a profile.
- Start to **DRAIN**.
- Start to **DEFROST**.
- Start to **FLUSH**. (If Option Fitted)
- Adjust your **OPTIONS**.

The 100 profiles are shown on this and nine other screens.

The other screens can be accessed quickly by moving the cursor down to the last entry on the page and pressing the down cursor key.

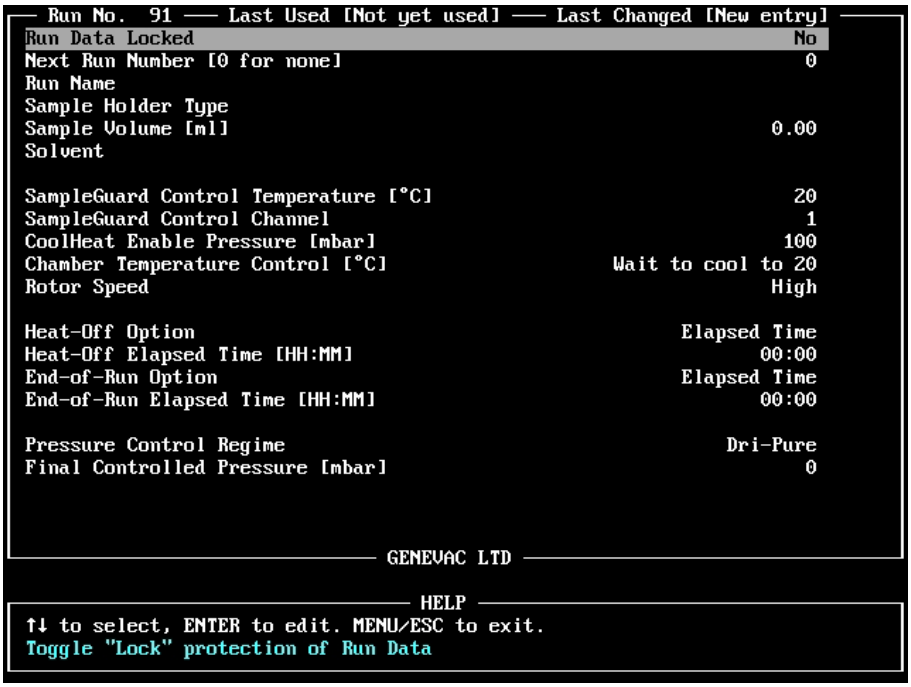
This will take you to the last entry on the next page. Alternatively, use the up cursor key.

Each line on the **SELECT RUN** screen is generated from the **RUN DATA** screen.

When the chamber is vented and the rotor stationary, this screen is accessed by selecting **VIEW/EDIT** at the foot of the **SELECT RUN** screen and pressing **START**.

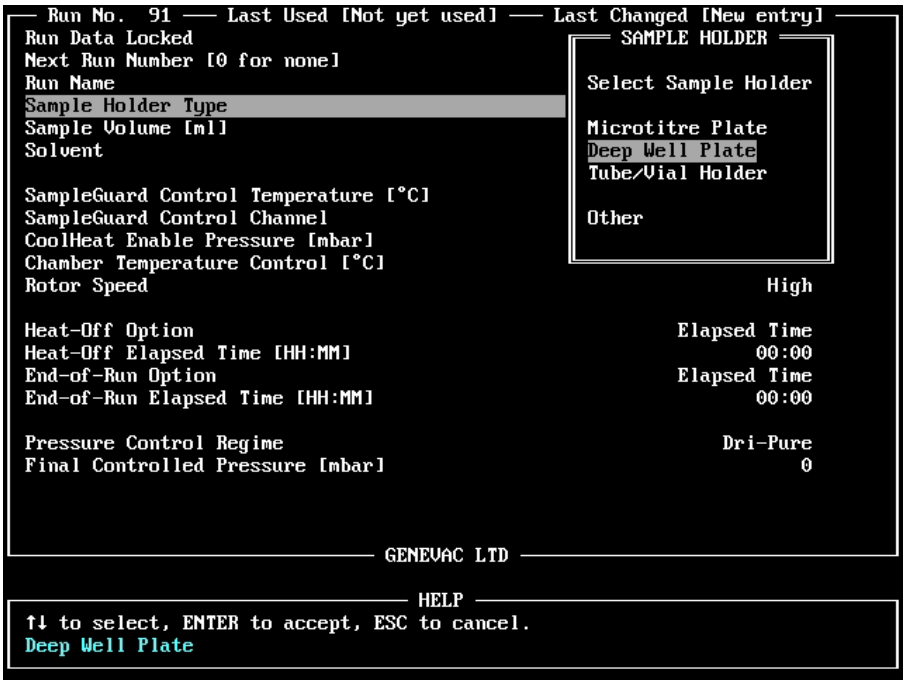
When the system is running, the **RUN DATA** screen can be accessed directly by pressing the **SETTINGS** key.

SETTINGS


Run No. 91 — Last Used [Not yet used] — Last Changed [New entry]
Run Data Locked No
Next Run Number [0 for none] 0
Run Name
Sample Holder Type
Sample Volume [ml] 0.00
Solvent
SampleGuard Control Temperature [°C] 20
SampleGuard Control Channel 1
CoolHeat Enable Pressure [mbar] 100
Chamber Temperature Control [°C] Wait to cool to 20
Rotor Speed High
Heat-Off Option Elapsed Time
Heat-Off Elapsed Time [HH:MM] 00:00
End-of-Run Option Elapsed Time
End-of-Run Elapsed Time [HH:MM] 00:00
Pressure Control Regime Dri-Pure
Final Controlled Pressure [mbar] 0
GENEVAC LTD
HELP
↑↓ to select, ENTER to edit. MENU/ESC to exit.
Toggle "Lock" protection of Run Data

- Use the UP and DOWN cursor keys to move between fields.
- Press ENTER to 'open' a field, make the entry and press ENTER again to 'close' the field.
- During a run, you access this screen by pressing the SETTINGS key.
- You can edit any parameter during a run in this way.
- Toggle **Run Data Locked** to protect your data.

Please note that Main Menu order has changed.
It now reads:Sample Holder Type, Sample Volume, Solvent

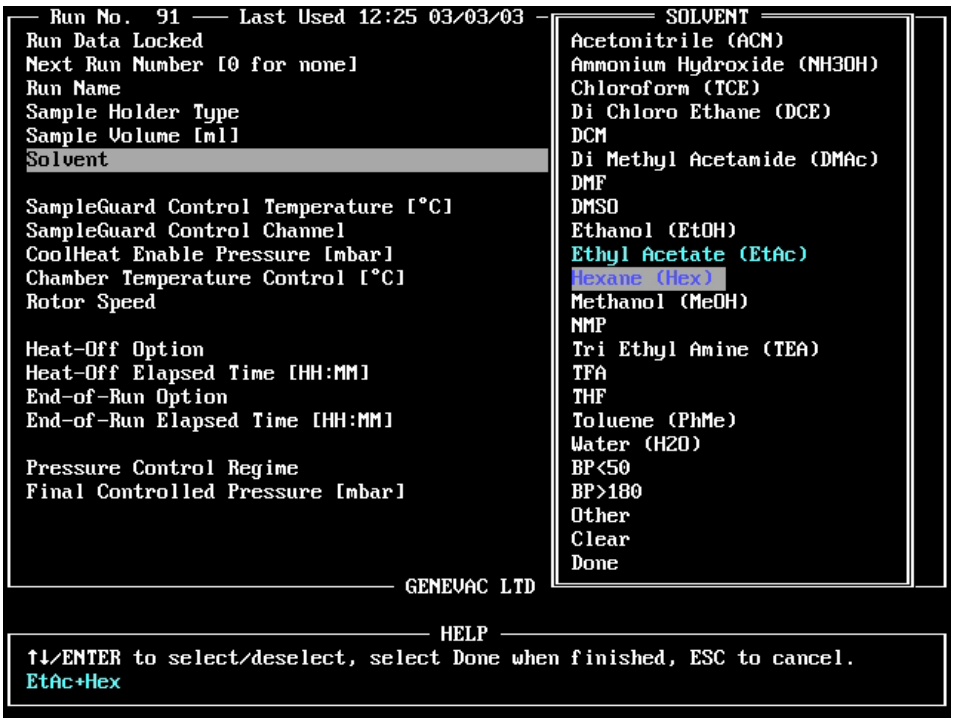


Sample Holder Type

- When selected you are presented with the SAMPLE HOLDER menu.
- Use Cursor keys to move up and down.
- Press ENTER to select.
- Select your sample holder type or if not defined, select **Other** and enter the details.

Sample Volume

- Select and enter value(s).



Solvent

When you select this field you are given a list of solvent types that have already been programmed into the evaporator.

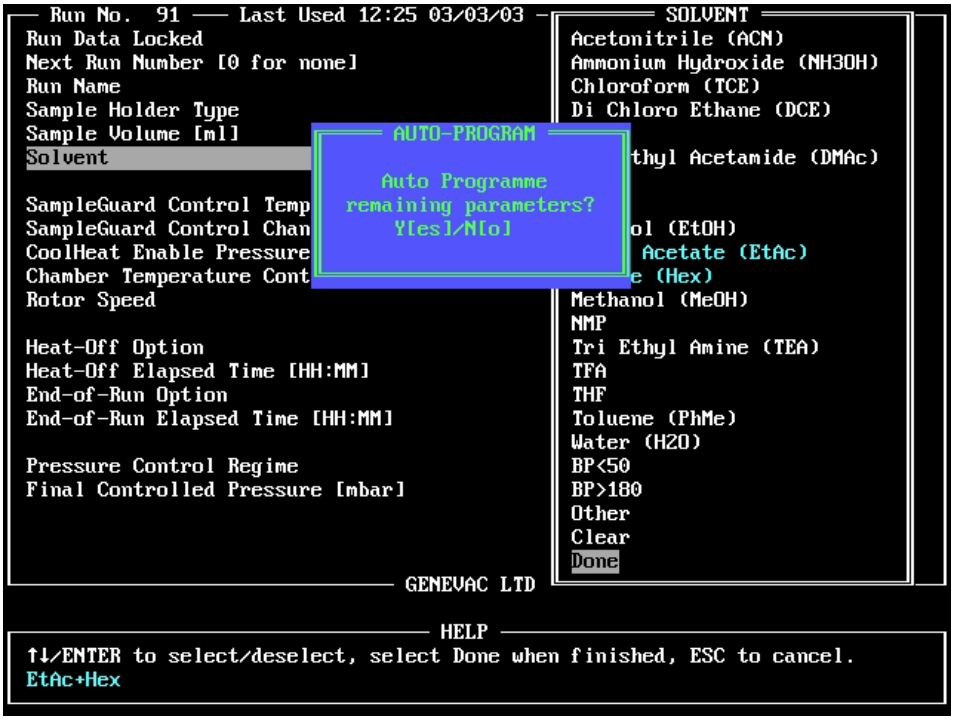
Use cursor keys to move up and down.

Press ENTER key to select (Highlighted in blue).

Please note that the solvent(s) that you have selected from the menu appear in the bottom left corner of the screen.

Select **Done** when finished.

Once your selection has been made you are now given a **new** option to **Auto Program** the remaining run parameters.

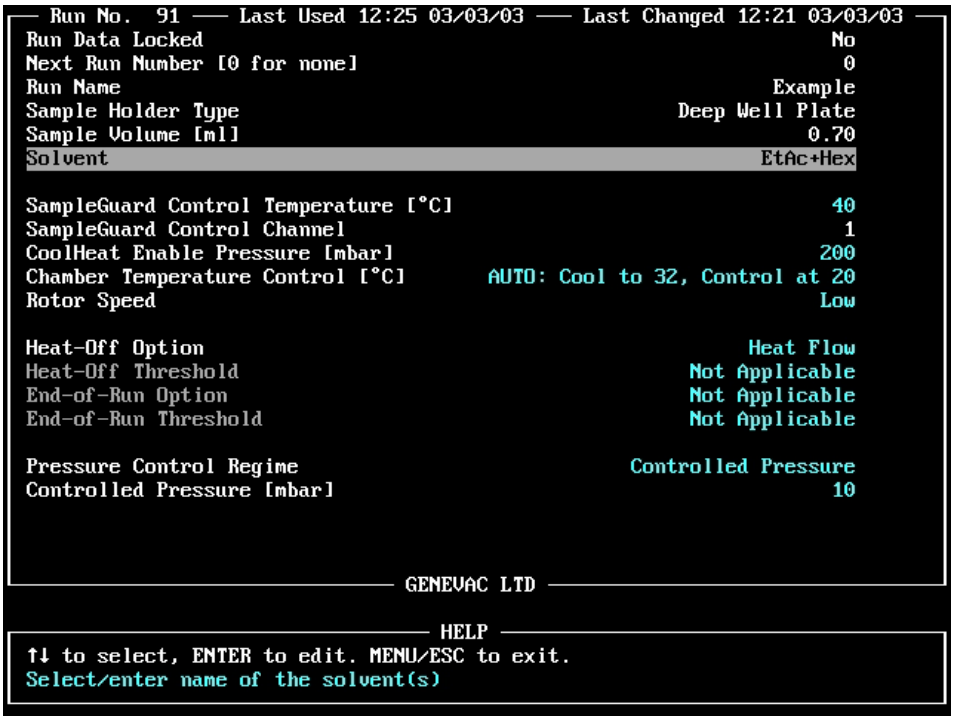


Press **Y** to accept **Auto Program**.

If you have entered an unrecognised solvent by selecting **Other** from the solvent menu, you will not be presented with the option to **Auto Program**.

Genevac and the ATEX Directive:

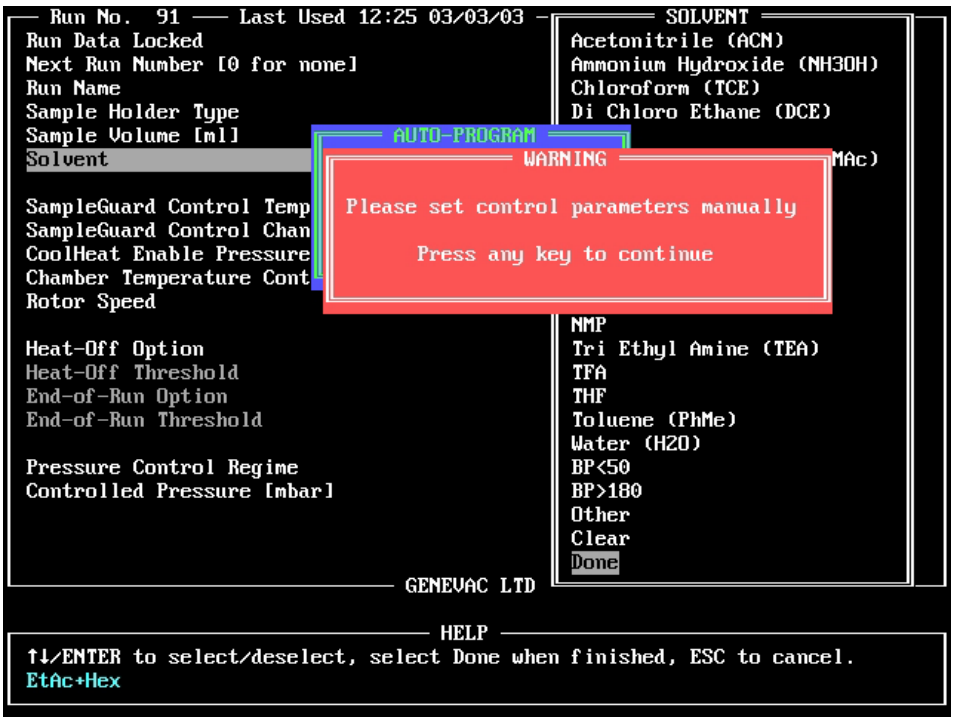
Please note that it remains the responsibility of the user to consider any solvents being evaporated within the context of the ATEX directive. The presence of solvents on the list above indicates only that they will not damage the system. If further information is required, please contact your Sales Representative or visit http://www.genevac.com/


Run No. 91 — Last Used 12:25 03/03/03 — Last Changed 12:21 03/03/03
Run Data Locked No
Next Run Number [0 for none] 0
Run Name Example
Sample Holder Type Deep Well Plate
Sample Volume [ml] 0.70
Solvent EtAc+Hex
SampleGuard Control Temperature [°C] 40
SampleGuard Control Channel 1
CoolHeat Enable Pressure [mbar] 200
Chamber Temperature Control [°C] AUTO: Cool to 32, Control at 20
Rotor Speed Low
Heat-Off Option Heat Flow
Heat-Off Threshold Not Applicable
End-of-Run Option Not Applicable
End-of-Run Threshold Not Applicable
Pressure Control Regime Controlled Pressure
Controlled Pressure [mbar] 10
GENEVAC LTD
HELP
↑↓ to select, ENTER to edit. MENU/ESC to exit.
Select/enter name of the solvent(s)

With **Auto Program Y[es]** selected.

The screen will now display the **Auto Programmed** data in Cyan (Light Blue).

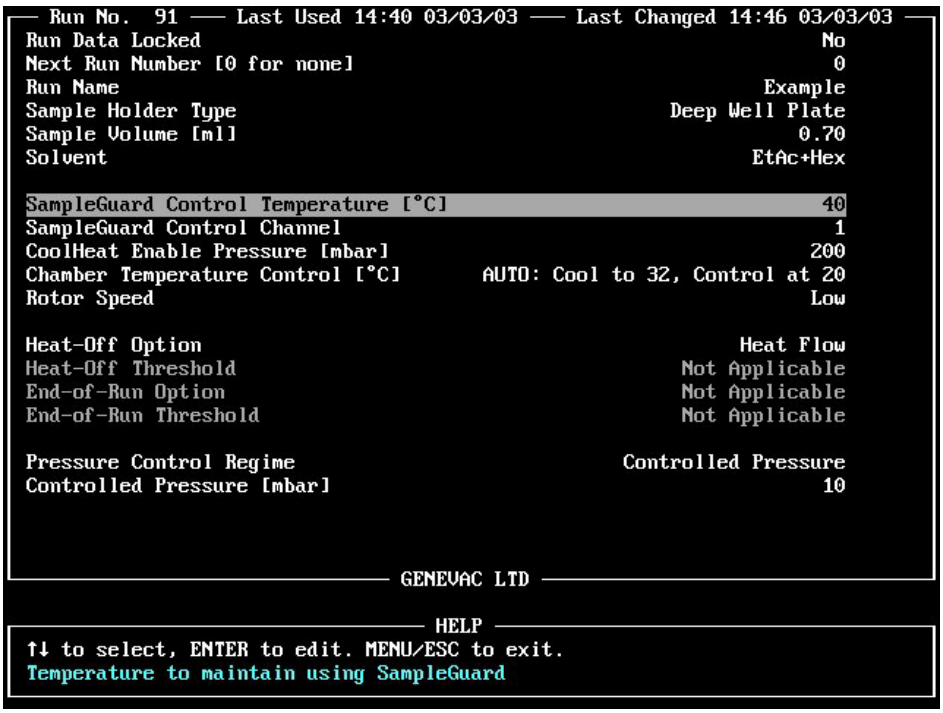
Save Run and continue



If you did not select **Auto Program** or were not given the option, due to inputting an unrecognised solvent, then you will be presented with this screen.

If editing an existing run, parameters will remain as previous settings.

If creating a new run, parameters will be set to safe default settings.


Run No. 91 — Last Used 14:40 03/03/03 — Last Changed 14:46 03/03/03
Run Data Locked No
Next Run Number [0 for none] 0
Run Name Example
Sample Holder Type Deep Well Plate
Sample Volume [ml] 0.70
Solvent EtAc+Hex
SampleGuard Control Temperature [°C] 40
SampleGuard Control Channel 1
CoolHeat Enable Pressure [mbar] 200
Chamber Temperature Control [°C] AUTO: Cool to 32, Control at 20
Rotor Speed Low
Heat-Off Option Heat Flow
Heat-Off Threshold Not Applicable
End-of-Run Option Not Applicable
End-of-Run Threshold Not Applicable
Pressure Control Regime Controlled Pressure
Controlled Pressure [mbar] 10
GENEVAC LTD
HELP
↑↓ to select, ENTER to edit. MENU/ESC to exit.
Temperature to maintain using SampleGuard

SampleGuard Control Temperature

Set within the range of -20 to 70°C.

SampleGuard Control Channel

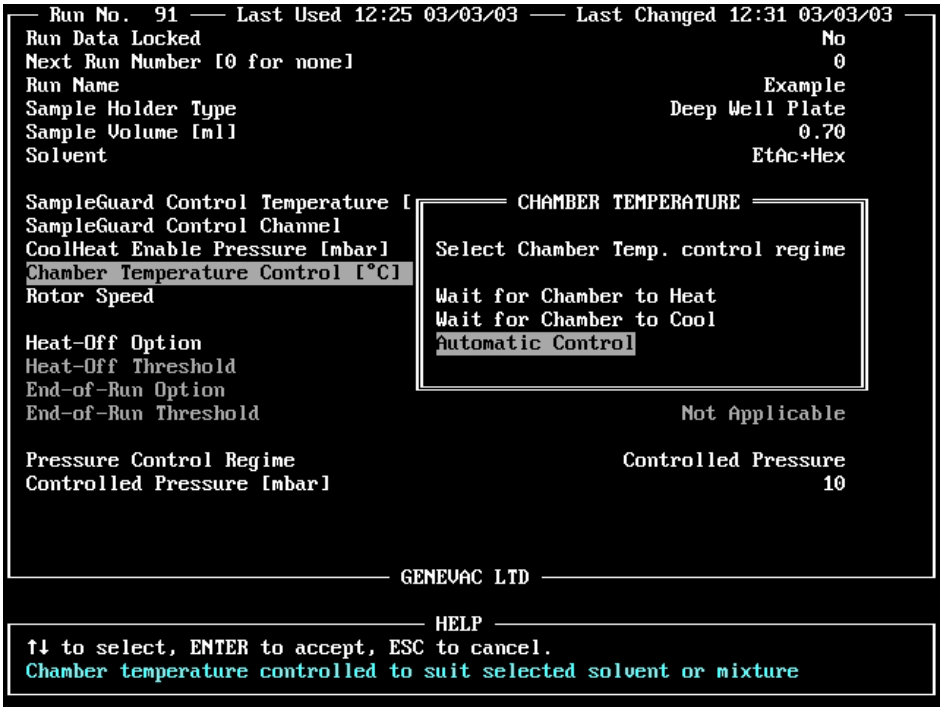
Channel 1 in Swing or Sample Holder.

Channel 2 in Sample.

Coolheat Enable Pressure

Set within the range of 5–400 mbar.

.


Run No. 91 — Last Used 12:25 03/03/03 — Last Changed 12:31 03/03/03
Run Data Locked No
Next Run Number [0 for none] 0
Run Name Example
Sample Holder Type Deep Well Plate
Sample Volume [ml] 0.70
Solvent EtAc+Hex
SampleGuard Control Temperature [
SampleGuard Control Channel
CoolHeat Enable Pressure [mbar]
Chamber Temperature Control [°C]
Rotor Speed
Heat-Off Option
Heat-Off Threshold
End-of-Run Option
End-of-Run Threshold Not Applicable
Pressure Control Regime Controlled Pressure
Controlled Pressure [mbar] 10
CHAMBER TEMPERATURE
Select Chamber Temp. control regime
Wait for Chamber to Heat
Wait for Chamber to Cool
Automatic Control
GENEVAC LTD
HELP
↑↓ to select, ENTER to accept, ESC to cancel.
Chamber temperature controlled to suit selected solvent or mixture

Chamber Temperature Control

There are now 3 options available:

Wait for Chamber to Heat

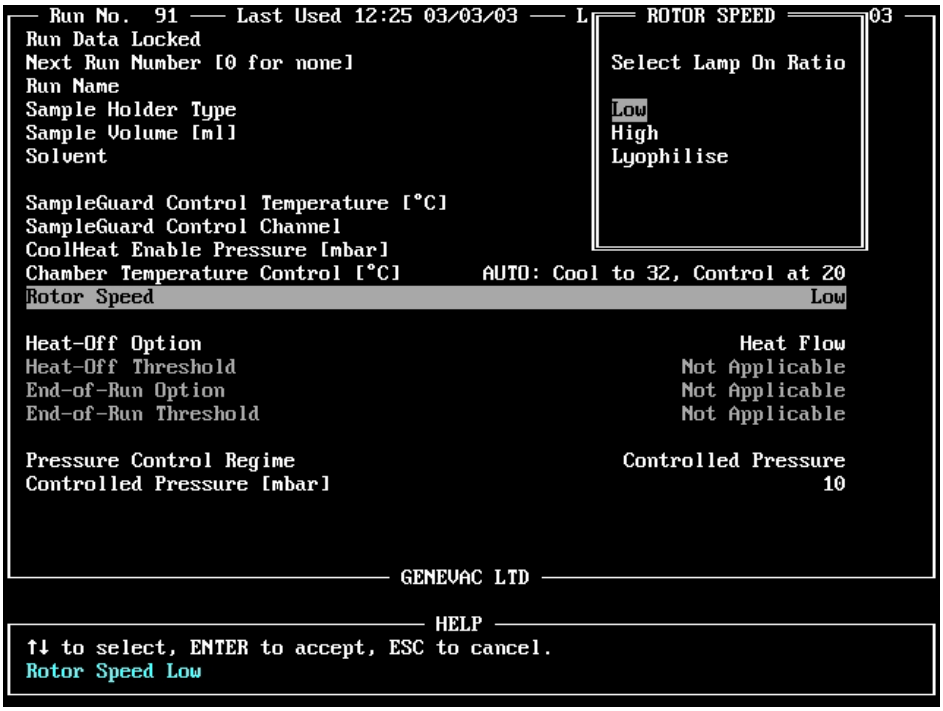
Range from 0°C to 45°C.

Wait for Chamber to Cool

Range from 0°C to 45°C.

Automatic Control

Temperature is automatically set to an optimised figure for the recognised solvent / mixture selected.



Rotor Speed

There are now 3 options available:

Low

Rotor speed applies nominally 300 G.

High

Rotor speed applies nominally 500 G.

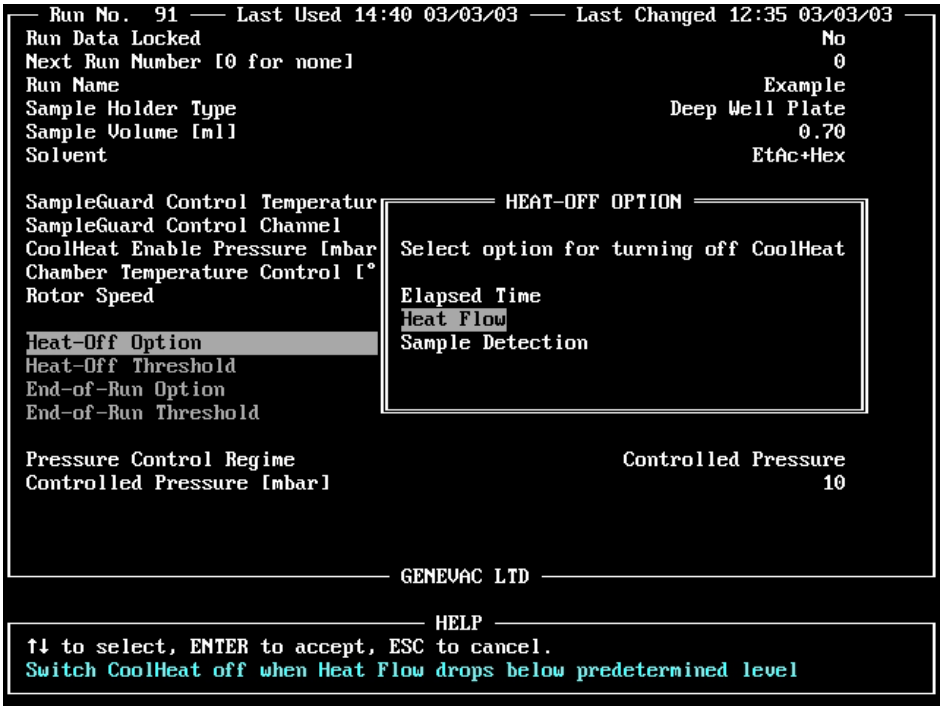
Lyophilise

Rotor speed:

HT-4 / 8 / 12 = 500 rpm

Note: Not available on Mega 980 and 1200 Systems.

SampleGuard and Coolheat are not available.



Heat-Off Option

There are now 2 new options available:

Heat Flow

Automatically detects dryness by monitoring the rate at which the solvent is evaporating.

Low solvent loading or if the lamps are turned off may cause Heat Flow to fail.

If failure occurs, select one of the other two options.

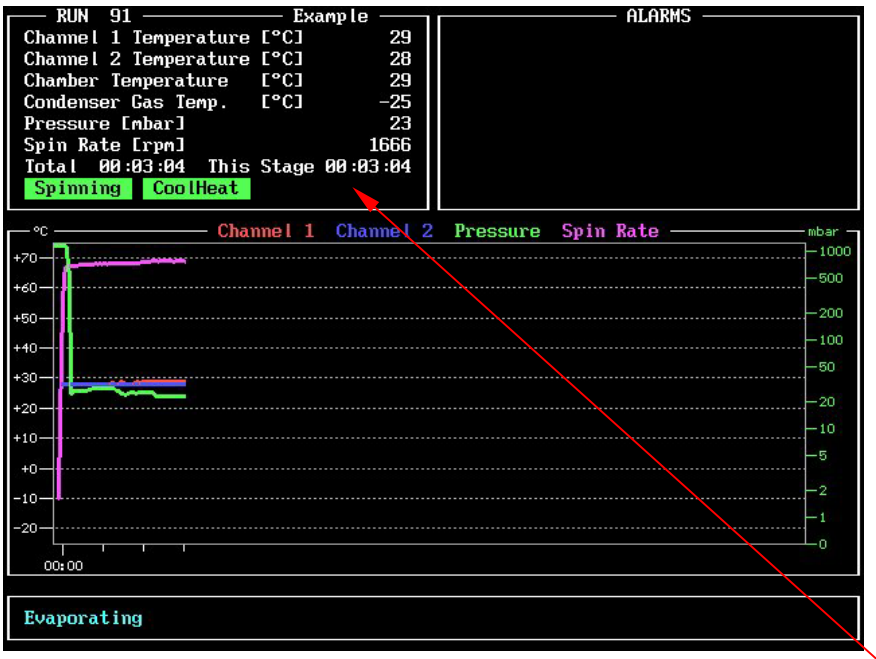
Sample Detection

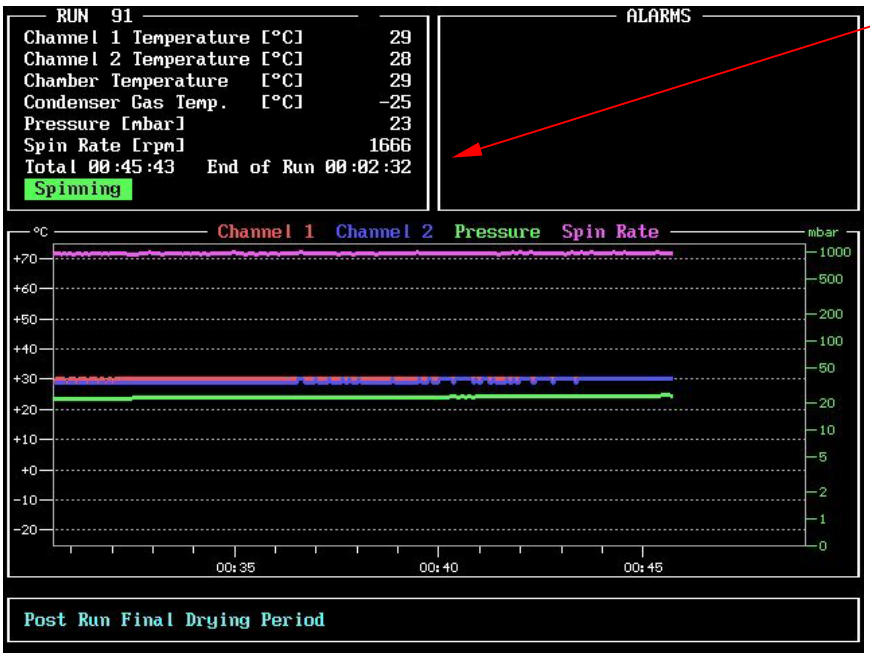
Monitors the temperature difference between the 2 SampleGuard channels.

During a run

The main section of the **RUN LOG** screen, gives a graphical display of the real time changes in chamber pressure, spin rate, sample and sample holder temperatures.

The top left hand section, displays the current temperatures of channels 1 and 2, the chamber temperature, the condenser temperature, the chamber pressure, the total time elapsed and the stage time elapsed if linked runs are being undertaken.




RUN 91
ALARMS
Channel 1 Temperature [°C] 29
Channel 2 Temperature [°C] 28
Chamber Temperature [°C] 29
Condenser Gas Temp. [°C] -25
Pressure [mbar] 23
Spin Rate [rpm] 1666
Total 00:45:43 End of Run 00:02:32
Spinning
°C
Channel 1 Channel 2 Pressure Spin Rate
mbar
+70 +60 +50 +40 +30 +20 +10 +0 -10 -20
1000 500 200 100 50 20 10 5 2 1 0
00:35 00:40 00:45
Post Run Final Drying Period

Run finished press < > to view data.
any other key to end.

NOTE THE NEW GRAPHICAL DISPLAY.

- The RUN LOG screen displays the real time events.
- The top left block gives current values.
- The top right block displays any alarms.
- The block at the foot of the screen displays the current status of the system and Instructions.
- Pressure is plotted on log scale.
- Press STOP to terminate a run at any time.

When run enters final drying period the display changes to indicate the time left to **End of Run** or if linked runs **End of Stage**.

Press the **DISPLAY** key during a run to return to the **RUN LOG** screen.

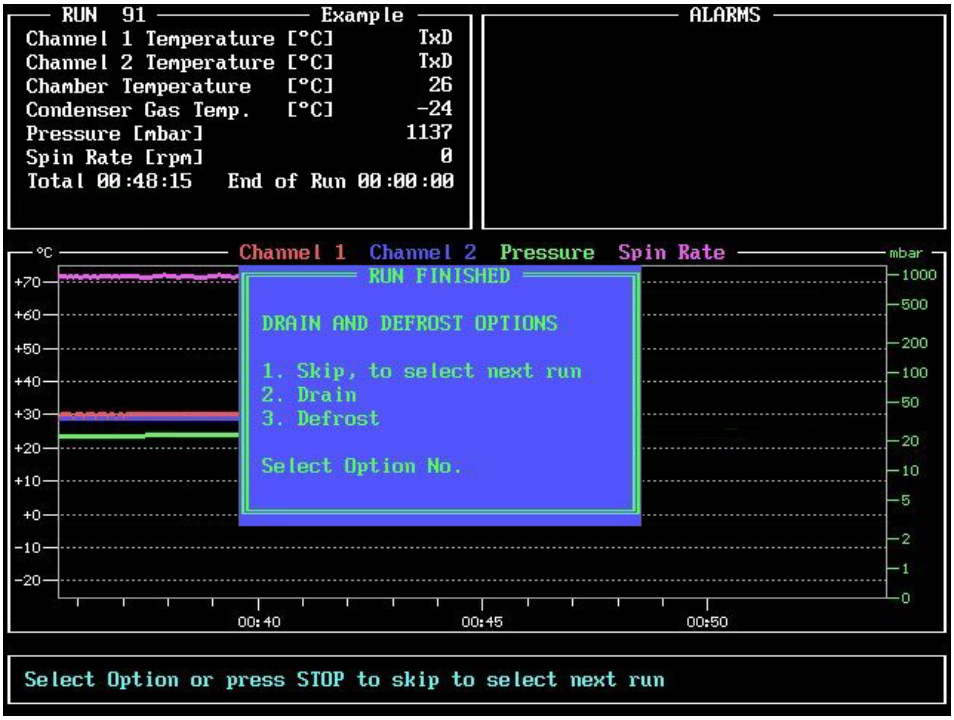
Operating the **STOP** key at any time during a run will terminate the run.

The chamber will vent and the rotor will start to spin down.

You will not be able to open the chamber until the chamber has reached atmospheric pressure and the rotor has stopped spinning.

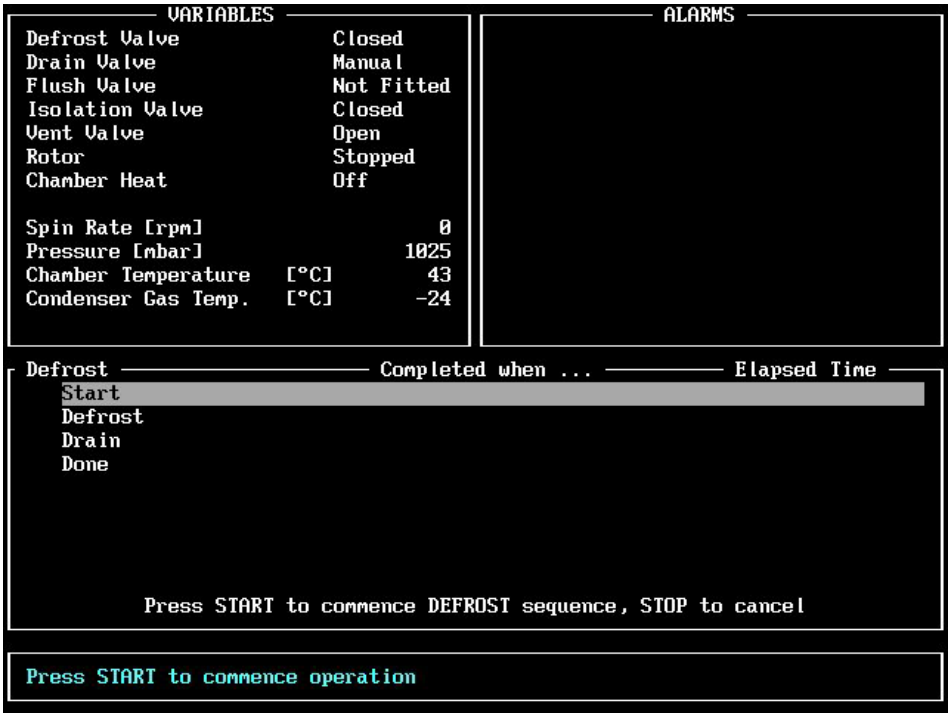
When the chamber has vented and the rotor stopped, you will be given this **STATUS** prompt.

When the run is finished, after pressing a key, the following screen is displayed.



Select the **DRAIN or DEFROST OPERATIONS** option using the numeric keys.

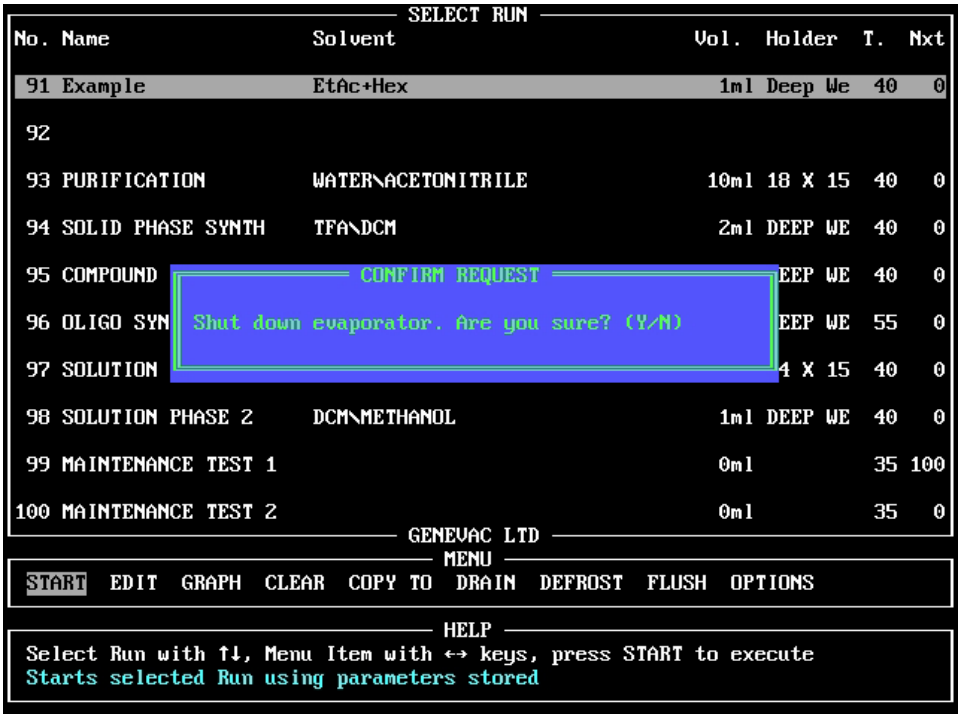
Press **ENTER** to display the **DRAIN or DEFROST MENU**.



- With the DEFROST CYCLE highlighted, press ENTER to start the defrost cycle.
- This will automatically open the defrost valve.
- Open the manual drain valve to drain the condenser when prompted.
- Drain the condenser after every run and at the end of the day.
- A defrosted and drained condenser will operate more efficiently.
- Periodically check the level of solvent in the containers attached to the drains.

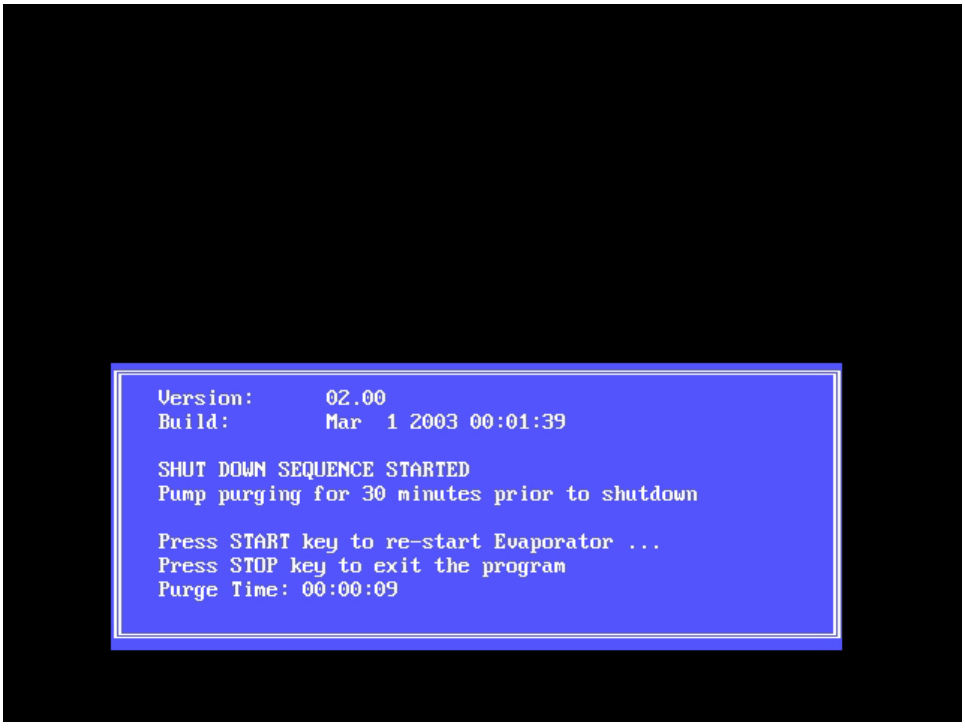
Screens similar to this are also displayed for **DRAIN** and, if fitted, the **FLUSH** option.

If you wish to end the work session on the system, go to the **Select Run** screen and press **STOP**.


SELECT RUN
No. Name Solvent Vol. Holder T. Nxt
91 Example EtAc+Hex 1ml Deep We 40 0
92
93 PURIFICATION WATER\ACETONITRILE 10ml 18 X 15 40 0
94 SOLID PHASE SYNTH TFA\DCM 2ml DEEP WE 40 0
95 COMPOUND EEP WE 40 0
96 OLIGO SYN EEP WE 55 0
97 SOLUTION 4 X 15 40 0
98 SOLUTION PHASE 2 DCM\METHANOL 1ml DEEP WE 40 0
99 MAINTENANCE TEST 1 0ml 35 100
100 MAINTENANCE TEST 2 0ml 35 0
CONFIRM REQUEST
Shut down evaporator. Are you sure? (Y/N)
GENEVAC LTD
MENU
START EDIT GRAPH CLEAR COPY TO DRAIN DEFROST FLUSH OPTIONS
HELP
Select Run with ↑↓, Menu Item with ↔ keys, press START to execute
Starts selected Run using parameters stored

This prompt will be displayed on the **SELECT RUN** screen.

Press **Y** to close the system down or **N** to select another run.


Version: 02.00
Build: Mar 1 2003 00:01:39
SHUT DOWN SEQUENCE STARTED
Pump purging for 30 minutes prior to shutdown
Press START key to re-start Evaporator ...
Press STOP key to exit the program
Purge Time: 00:00:09

- The **SHUT DOWN** screen will be displayed when you select the **Y** response.
- The pump will be purged of solvent vapours for 30 minutes.
- You can restart the run by pressing **START** at any point.
- You can abort Shutdown by pressing **START** at anytime.
- If you want to start a different run, press **STOP**, select **N** and press **ESC** to display the **SELECT RUN** screen.

- The **USER MENU** is displayed by pressing the **MENU** key ***only*** when the chamber is vented and the rotor stationary.
- Lamp Layer Selection is not an option for the HT-4 or Mega.
- In Operator Controls you can adjust the screen brightness to suit your viewing angle.
- You can turn the audible warning off or on.
- Press **ESC** to leave this menu

CONTROLS MENU
Adjust Screen Brightness
Keypress Beep On/Off Off
User Intervention Beeps On/Off Off
End of Run Beeps On/Off Off
GENEVAC LTD
HELP
↑↓ to move to required option, ENTER to select, ESC to leave this menu
Adjusts brightness and optimum screen viewing angle

Use the cursor keys to select the **OPERATOR CONTROLS** and press **ENTER**.

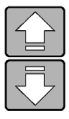
- Use the **UP** and **DOWN** cursor keys to adjust the screen brightness to suit your viewing angle.
- Toggle the beep **ON** or **OFF**.
- Press **ESC** to exit this screen.

4 How to enter control data

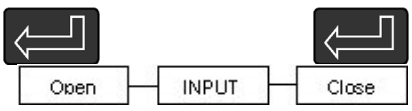
All control data is entered from the **RUN DATA** screen.

From start up of the system and the software control screen, press **START** to display the **SELECT RUN screen**.

Select the **VIEW/EDIT DETAILS** option and press **START** to display the **RUN DATA screen**.



Use the **UP** and **DOWN** cursor keys to move between fields.



Unless otherwise stated, press **ENTER** to 'open' a field, input your requirement and press **ENTER** again to 'close' the field.

Run Data Locked

When set to **Yes** this setting protects the run data from inadvertent corruption.

Press the **ENTER** key to toggle between **Yes** and **No**.

Note that you will **not** be able to make amendments or additions if the data is **locked**.

Lock the data after completing the run entry.

Next Run Number

This control enables you to link and loop runs in any sequence.

If you want to link runs, list the number of the run you want to follow the run you are entering.

Repeat this process for any subsequent runs you would like to link.

You can also loop a run.

The limitation of how many runs you can link will be either the maximum run time of 99 hours 59 minutes or 99 different steps.

Linked and looped runs can always be interrupted by manually stopping the system.

Use the **DOWN** cursor key to move to the next field.

Run Name

Enter the title of the run that should be no more than 20 characters long.

Use the **DOWN** cursor key to move to the next field.

Sample Holder Type

Press **ENTER** to display the **Select Sample Holder** drop down menu.

Use the **UP** and **DOWN** cursor keys to select the option and press **ENTER**.

If **OTHER** is selected, the description should be no more than 20 characters long.

Sample Volume

Press **ENTER** and input the volume in mls.

Solvent

Press **ENTER** to display the **Solvent** Drop down menu.

Use the **UP** and **DOWN** cursor keys to select the option(s) and press **ENTER.**

Once your selection has been made select **Done** and press **Enter**, you are now given a **new** option to **Auto Program** the remaining run parameters.

If **OTHER** is selected, the name should be no more than 31 characters long, press **ENTER** to return to **Solvent** drop down menu.

Select **Done** and press **ENTER**.

SampleGuard Control Temperature

NOT AVAILABLE FOR LYOPHILISATION

Press **ENTER** and input the temperature you wish to limit the sample to during evaporation.

This can be in the range of 1 to +70° C.

Note that if not specified, the default setting is 30° C.

Sample Guard Control Channel

NOT AVAILABLE FOR LYOPHILISATION

Press **ENTER** and input the channel on which you want to control temperature.

Channel 1 will normally be assigned to the probe in the sample holder and channel 2 to the probe in the sample.

Note that when powered down, this setting defaults to channel 1 as the control channel.

CoolHeat Enable Pressure

NOT AVAILABLE FOR LYOPHILISATION

Press **ENTER** and input the pressure below which you want the lamps to be turned on.

This can be in the range of 5-400 mbar.

If nothing is selected, the setting will default to 400 mbar.

Chamber Temperature Control

Press **ENTER** and Select the method from the 3 options displayed:

Wait for Chamber to Heat

Range from 0°C to 45°C.

Wait for Chamber to Cool

Range from 0°C to 45°C.

Automatic Control

Temperature is automatically set to an optimised figure for the recognised solvent / mixture selected.

Input the minimum temperature you want the chamber to reach before spin-up will commence.

Rotor Speed

Press **ENTER** to display the **Select Rotor Speed** drop down menu.

Use the **UP** and **DOWN** cursor keys to select **Low** or **High** or **Lyophilise** (optional at order).

Low speed applies nominally 300 G and high speed nominally 500 G.

LYOPHILISE IS NOT AVAILABLE ON MEGA 980 AND 1200 SYSTEMS.

Lyophilise applies nominally 50 G at a very low rotor speed.

Selecting the **Dri-Pure** option described later will over-ride this option and sets **High**.

If nothing is selected, the setting will default to **LOW** speed.

Heat-Off Option

Select either: Elapsed Time, Heat Flow or Sample Detection.

For Elapsed Time enter value in hours and/or minutes

Heat Flow

Only requires 1 SampleGuard probe.

This MUST be used to control the sample holder or swing temperature.

Either channel 1 or channel 2 may be used, ensure that the channel chosen is selected as the control channel in the run options.

NOTE:
CONTROL CHANNEL PROBE MUST BE PLACED IN THE SWING OR SAMPLE HOLDER

Automatically detects dryness by monitoring the rate at which the solvent is evaporating.

Low solvent loading or if the lamps are turned off may cause Heat Flow to fail.

If failure occurs, select one of the other two options.

For very low solvent loading, requiring very little heat, then the following would be used:

Sample Detection

Requires both SampleGuard probes, Channel 1 to monitor the swing/holder temperature and Channel 2 in the centre well of the sample holder to monitor sample temperature.

Monitors the temperature difference between the 2 channels.

At the start, they are the same, as the samples dry the temperature difference gets smaller.

When the temperature difference reaches the preset figure (Not user configured), the run is terminated.

Heat-Off Elapsed Time

This can be in a range of 0 (lamps off for the entire run) to 99 hours 59 minutes.

End-of-Run Option

This option is the elapsed time after which the run will be stopped.

End-of-Run Elapsed Time

Press **ENTER** and input the time after which you want the run to stop.

This can be in the range of 1 minute to 99 hours 59 minutes.

Pressure Control Regime

Press **ENTER** to display the **Select Pressure Control Option** drop down menu.

Use the **Up-Down** cursor keys to select the pressure option required.

Full Vacuum

Full Vacuum will take the chamber pressure down to the vacuum capability of the pump.

Controlled Pressure

When the **Controlled Pressure** option is selected, the **Controlled Pressure** field will be displayed.

Move down to this field using the **DOWN** cursor key and press **ENTER**.

Input the pressure you want the chamber to be limited to in the range of 0 to 500 mbar.

Dri-Pure

NOT AVAILABLE FOR LYOPHILISATION

DRI-PURE reduces the vacuum over a predetermined period to 50 mbar, then goes to the control pressure as set by the user.

This feature is particularly useful in preventing bumping, (the violent boiling of solvents), resulting in solvents being expelled, which is a source of cross contamination of samples.

Bumping can also cause products to be deposited on the glass lenses of the CoolHeat lamps, which eventually results in breakages.

Note that during the **DRI-PURE** cycle, which is approximately 40 minutes, the CoolHeat function will be disabled.

Variable Dri-Pure

NOT AVAILABLE FOR LYOPHILISATION

Variable Dri-Pure allows the user the option to set:

1) The pressure at which the vacuum ramp will start.
2) The pressure at which the vacuum ramp will end.
3) The total duration of the vacuum ramp.
4) Final Controlled Pressure.